DOCUMENT RESUME

ED 315 228 RC 017 284

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TITLE Cooperative Learning and Cooperative Staff Development To Promote Social Integration.
SPONS AGENCY Maine State Dept. of Educational and Cultural Services, Augusta.
PUB DATE Mar 89
NOTE 32p.; In: Education and the Changing Rural Community: Anticipating the 21st Century. Proceedings of the 1989 ACRES/NRSSC Symposium. See RC 017 257
PUB TYPE Speeches/Conference Papers (150) -- Reports - Descriptive (141) -- Reports - Evaluative/Feasibility (142)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Class Organization; *Cooperative Learning; *Cooperative Planning; *Faculty Development; Heterogeneous Grouping; Intermediate Grades; Junior High Schools; Learning Strategies; *Small Group Instruction; Social Integration; Special Education; *Teaching Methods

ABSTRACT

Cooperative group learning involves organizing students in small heterogeneous groups to work on academic assignments. This paper reports a staff development project to implement cooperative group learning for 417 general education middle school and junior high school students, including 41 special education students. To impart cooperative learning skills, a cooperative approach to staff development was used, including teacher support teams, teacher decision-making, and peer coaching. Teachers were involved in project-related decisions on format, class content, and training session schedules. By the end of the year, students in cooperative classes experienced greater decreases in alienation or feelings of estrangement from school, peers, and classroom activities than students in control classes. They also experienced greater feelings of positive interdependence with their classmates than students in control or contrast classes. Special education students in cooperative classes were rated more favorably over the year by their regular class peers; non-handicapped students in cooperative classes also rated one another more positively than students in contrast classes. Teachers were using cooperative learning procedures from 25% to 50% of the time in their classes by the end of the year. They evaluated the project favorably. (DHP)

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ED315228

Cooperative Learning and Cooperative Staff Development to Promote Social Integration

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March, 1989

This project was supported by the Department of Educational and Cultural Services, Augusta, Maine, utilizing federal funds under Public Law 94-142, Part B, Education of All Handicapped Children Act.

Running head: COOPERATIVE LEARNING AND STAFF DEVELOPMENT

RC 017284

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Abstract

A cooperative learning staff development and research project was conducted in a middle school and junior high school in Gardiner, Maine to promote the social integration of students with special needs. Staff development activities were aimed at imparting skills in cooperative learning to improve the quality of instruction for students with disabilities as well as nondisabled students. This paper presents an overview of cooperative learning, a cooperative learning staff development model, an abbreviated discussion of project evaluation outcomes, and a description of Maine's rural support network for cooperative learning.

Cooperative Learning and Cooperative Staff Development to Promote Social Integration

Cooperative Learning

Cooperative group learning involves organizing students in small heterogeneous groups to work on academic assignments. A key feature of cooperative learning is positive interdependence, where students recognize that they must work together to successfully accomplish the assigned task. Students are made to feel accountable for contributing to the group's efforts as well as achieving their own individual learning goals. Teachers provide students with specific instruction on how to collaborate in a group (e.g., by providing instruction in social skills such as active listening or encouraging others to express their ideas). While students work in cooperative groups, teachers monitor student behavior, provide assistance, and at the end of the activity they discuss group functioning with the students and provide them with feedback on their performance.

Extensive research on cooperative learning indicates that in addition to contributing significantly to achievement, students engaged in cooperative learning activities will tend to be friendlier, have more of a group orientation and will learn more from one another. Over fifty

studies have been conducted on mainstreaming and cooperative learning. Reviews by Johnson, Johnson and Maruyama (1983) and Slavin (1980) demonstrate positive effects of cooperative learning on handicapped and nonhandicapped students with respect to academic achievement, interpersonal relations, self-esteem, and attitudes toward school.

Cooperative learning activities provide an ideal context for instruction of disabled students in the mainstream, because they afford opportunities for meaningful social interaction with nondisabled peers. These activities are compatible with other effective instruction practices, such as individualization of instruction, behavioral procedures, direct instruction and mastery learning.

The project involved 417 students (197 boys and 220 girls) from 21 general education classes in a middle school (10 classes, grades 5 and 6) and junior high school (11 classes, grades 7 and 8). Of this group, 41 (32 boys and 9 girls) were students who required special education services, classified as learning disabled, behaviorally disturbed, hearing impaired, and mentally handicapped. These students spent at least part of their academic day in regular classes; receiving either special education support in the mainstream or part-time instruction within a resource room.

The Staff Development Approach

A key assumption of the staff development project was that successful social integration of students with disabilities requires active communication and cooperation among regular and special education staff members. Regular class teachers must possess a repertoire of instructional strategies and techniques for use with students who do not seem to benefit from standard approaches. Special educators can provide support to regular class teachers by adapting and modifying curriculum, making suggestions regarding behavioral management, and by recommending instructional strategies that are suited to the student's particular learning style and needs. Educational assistants can provide invaluable support in the regular class, as well.

Surveys on Mainstreaming Needs

Prior to the onset of project activities, an informal survey given to teachers in the middle school and junior high school indicated a strong desire for specific teaching methods appropriate for handicapped students in regular class settings. During the first month of the project a more formal survey of teacher's opinions relative to mainstreaming special needs children (Larrivee, 1985) indicated that, in general, teachers had an "average" degree of success in dealing with special needs students in the

regular classroom and that the availability of support services was "average to high." Most teachers agreed that the integration of special-needs students can be beneficial for regular students and that mainstreaming will promote the social independence of special-needs students. Thirty-eight percent of the teachers concurred that mainstreaming will promote the academic growth of students with special needs (although about 44% of the teachers were undecided). On the negative side, respondents disagreed with the statement that regular classroom teachers have sufficient training to teach children with special needs.

Previously, mainstreamed students in the two schools had received mostly remedial/tutorial instruction with a heavy emphasis on individualized instruction. The fifteen teachers who volunteered to participate in the project were very receptive to learning about different instructional approaches, especially about techniques for involving students with special needs in curricular and other class activities.

Teacher Decision Making

Our conviction is that adult learners know where, when, and how they like to learn new information. Therefore, every effort was made to involve teachers in project related decisions (e.g., the format, content, and scheduling of training sessions). The training model proposed by teachers

was very similar to the ideal format the authors would have chosen. And, importantly, it had the added advantage of being theirs. One teacher's comment represented the sense of empowerment the group gained by being involved in making decisions about training procedures and activities: "I can't believe you're asking us this...no one ever asks us what we want to do!" Additionally, a "Please Never Do" list was created by the teachers. For example, teachers asked us not to schedule training activities on Saturdays.

Staff Development Activities

To impart knowledge and skills in using cooperative learning procedures, a one day workshop was held before school in August, a two day conference with a national expert in cooperative learning (Dr. David Johnson) took place in February, and monthly seminars were held in the junior high school. University consultants also visited participating teachers' classes to observe them conducting cooperative activities.

Measures

Preliminary program analysis focused on two major areas of intended impact: student outcomes and teacher outcomes. Various types of data were collected, including questionnaires, rating scales, and interviews.

Student Outcomes

Two instruments were employed to measure student outcomes: the Classroom Life Instrument, developed by Roger and David Johnson at the University of Minnesota was used to assess student perceptions of the "social climate" in the class. Students rated 59 Likert-type questions using a 5-point scale (1=strongly agree, 5=strongly disagree) to indicate how true a statement was for them. Johnson, Johnson, Buckman and Richards (1985) reported that the instrument contains 12 factors that have been identified statistically and theoretically through factor analyses (see Johnson et al., 1985 for Chronbach alphas on the factors). Factors relate to teacher and student academic and personal support, academic self-esteem, aspects of cooperation, and alienation, among others.

A sociometric method was used to assess peer acceptance. According to Asher and Taylor (1981), sociometric indices have been shown accurately to reflect social perceptions and judgements about an individual. Using a peer rating instrument, students were asked to rate each of their classmates according to how much they would like to "work with" that person. A 5-point scale was used, with response categories ranging from "yes, very much" (5) to "no, not at all" (1). Students could also indicate if they did not know a particular student. Teachers were

provided with scripted instructions on how to conduct the Classroom Life assessment and the peer ratings.

Descriptive data

Demographic data, degree of mainstreaming, behavioral ratings using the Behavior Rating Profile (Brown & Hammill, 1983), WISC-R IQ level, and school attendance were among the types of data collected on the special education students. Unfortunately, academic achievement outcomes, as assessed through standardized tests were not available.

Structured Interviews

Special education students were interviewed to assess their perspectives on participating in cooperative groups in regular classes. The interviewer was a community member who was not affiliated with the cooperative learning project but had experience in working with students with disabilities. The structured interview consisted of 12 short-answer and open-ended questions.

Teacher Outcomes

Extent of teachers' use of cooperative learning techniques and their perceptions of the staff development project were assessed through self-ratings and questionnaires. Peer observations and observations by project

staff were used to document skill in implementing cooperative learning procedures.

Facilitating Teacher

Staff development activities were designed to have relevance for special and regular education teachers and educational aides. A "facilitating teacher" (certified in regular and special education) was responsible for supporting regular class teachers in instructing students with disabilities and reinforcing the use of cooperative learning in the two schools. This teacher also assisted with data collection activities.

Peer Coaching and Teacher Support Group

Encouraging cooperation among teachers was another important goal of the project. For, as Johnson, Johnson, and Holubec (1986) noted, the teachers participating in the training are the ones who teach each other how to use cooperative learning procedures and who sustain each other's interest in doing so, not the consultants. Monthly seminar meetings with university consultants constituted a teacher support structure aimed at enhancing the practical implementation of cooperative learning techniques. Along with delivering information on cooperative learning and effective instruction, sessions were designed to facilitate sharing of ideas as well as solving problems related to cooperative learning and social

integration. Setting up peer coaching teams within each school was another method used to foster skill in implementing cooperative learning procedures and create an atmosphere of support among teachers.

Procedures and Design

To assess the effects of the cooperative interventions, three conditions were compared: 1) a cooperative learning group 2) a control group and 3) a contrast group. Eight volunteer teachers used cooperative learning techniques in an experimental class. These teachers also taught a control class at the same grade level and subject area. Project teachers chose two classes they wanted to work with and class assignment to cooperative or control conditions was made randomly. For comparison purposes, a contrast group of nine teachers who did not volunteer to implement cooperative learning in their classes participated in the evaluation activities.

In the cooperative condition, teachers were asked to use cooperative learning strategies with their students at least twice a week, e.g., for two 45-minute periods. These same teachers agreed not to use cooperative learning groups in the control classes. Teachers in the contrast condition were unfamiliar with cooperative learning techniques. Instruction in both the control and contrast conditions can be described as

traditional and with a predominance of whole class instruction and individualistic learning. Teachers involved in the investigation taught classes in academic content areas (e.g., math, English, science) with the exception of two home economics classes. Project personnel observed teachers in the cooperative classes to assure they were correctly implementing the procedures.

Evaluation Results and Discussion

The results of the preliminary analyses are presented below, however, additional analyses are to be conducted.

Three types of analyses were conducted on the Classroom Life survey results. First, a cluster analysis using the SAS Variable Cluster Analysis (VARCLUS) program was performed on the 59 survey items. To determine whether students' perceptions of the classroom climate became more positive over the academic year, a Wilcoxon 2-sample t-test (with continuity correction of .5) was computed on each cluster for each of the groups in October and May. Then an analysis of covariance was conducted to compare pretest and posttest cluster differences among the three conditions.

A cluster analysis was performed on the Classroom Life results using a maximum second eigen value of one, generated ten clusters. Of

these, seven were logically and theoretically meaningful. Table 1 presents the cluster definitions and data on the proportion of the variation explained. An analysis of covariance using the Wilcoxon nonparametric test was employed to compare pretest and posttest differences of students' rank ordered scores in the three conditions. Significant differences favoring the cooperative group were found for two clusters: alienation and positive interdependence. In the cooperative condition students felt significantly less "alienated" or estranged from peers, school and classroom activities by the end of the year than students in the control group. Students in the cooperative condition also experienced greater feelings of sharing resources and working for mutual outcomes than in the control or contrast conditions. Significant differences concerning student support existed between the control and contrast group, with more positive changes occurring in the contrast group. Differences between the cooperative classes and the control or contrast classes regarding social support were nonsignificant. Cluster pretest and posttest means are reported in Table 2. Pre and posttest classroom life ratings by special education students indicated nonsignificant differences among groups. Analysis of sex differences in student ratings indicated no significant differences.

Peer Ratings

Paired t-tests performed on peer ratings of students in the three conditions during October and May yielded information on changes of interest, namely those that were significantly different in the positive direction ($p<.05$). A chi square test with Yates correction procedure comparing significant and positive peer rating changes on all students in the three conditions indicated significant differences among the three conditions ($X^2=5.87$, $df=2$, $p<.05$). Pairwise comparisons indicated that the cooperative and the contrast conditions differed significantly ($X^2=4.84$, $df=1$, $p<.027$). Difference between the cooperative and control group were nonsignificant, as were differences between the control and contrast group ($X^2=.23$, $df=1$, $p<.63$). (See Table 3 for cell frequencies for the three conditions.)

Comparisons of frequencies of pretest to post-test differences of ratings of special education students that were significant in the positive directions indicated significant differences among conditions ($X^2=10.98$, $df=2$, $p<.004$). (See Table 4 for cell frequencies of peer ratings on special education students.) The cooperative condition and the contrast condition differed significantly ($X^2=5.82$, $df=1$, $p<0.15$), with more positive changes occurring in the cooperative condition. Differences

between the cooperative and control conditions were nonsignificant ($X^2=1.87$, df=1, $p<.17$). A comparison of the control and contrast condition could not be calculated due to the zero frequencies of significantly different and positive changes. As Table 4 indicates, there were six significantly different and positive changes in the cooperative condition and none in the control and contrast condition.

We were also interested in knowing whether or not peer ratings on the special education students were correlated with their IQ levels or their standard scores on the Behavior Rating Profiles (BRP). The Pearson correlation coefficients show significant negative correlations between verbal scale IQ scores and peer ratings by other special education students in their special classes ($r=-.54$, $p<.015$) and full scale IQ scores and peer ratings ($r=-.436$, $p<.05$). When ratings of special education and regular education classmates were combined, signficant negative correlations also were found between verbal IQ scores and peer ratings ($r=-.54$, $p<0.15$) and full scale IQ scores and peer ratings ($r=-.436$, $p<.05$). Interpretation of the negative correlations is that as IQ level goes up, the peer rating goes down, or vice versa. From these results, one might speculate that lower functioning students may be more likely to receive higher ratings from their peers than do the higher functioning students. Perhaps the

more alike students are in their cognitive abilities, the higher are their expectations for acceptable behavior, which influences how much they like to work with one another.

Correlations between performance IQ scores and peer ratings were nonsignificant. Correlations between peer ratings and standard scores on the scales of the BRP (home, school, peer, teacher, and parent) were nonsignificant.

Structured Interviews

Twenty-three of the special education students participating in cooperative learning activities in special education and general education classes were interviewed to assess their opinions about working in cooperative learning groups. Their responses to a small sample of items will be presented (a more detailed report can be obtained from the authors). Of the 23 students, 17 (74%) agreed that they liked working in cooperative groups, 3 (13%) said they weren't sure and 3 (13%) said they did not like working in cooperative groups. When asked what they liked about working in cooperative groups, the following comments are selected from those that were contributed:

"It makes it less hard for me."

"You can be with a friend and it is easier."

"You get more accomplished--the work is more explained."

"You can get along with people you don't like."

"You can help each other learn new things."

When asked what they don't like about working in cooperative groups, some of the responses were the following:

"Sometimes you get paired up with someone you don't like."

"Working with a lot of people who goof off."

"When I work with people I really like, I get talking and don't get so much accomplished."

"When someone in your group doesn't work."

"I like working by myself and I had help from the teacher."

All responses to the question concerning "how other kids treat you in cooperative groups" were positive ("good," "pretty good") or neutral ("ok," "all right"). Regarding treatment by peers in classes without cooperative groups, a few negative comments were made ("mean," "they tease me a lot," "they treat me like I'm nobody"), but most comments were positive or neutral. Twenty (87%) of the students felt that the regular class students were friendlier to them this year, and 17 (74%) had made new friends in the regular class (4 did not and 2 already knew students from the preceding year).

Students perceived their behavior as appropriate both in cooperative and noncooperative classes. Almost all students felt their behavior had improved over the school year. Fifteen (72%) students felt they learned "well," "good," or "better" in cooperative groups than in other types of classes, and 6 (28%) felt they did not learn as well in cooperative groups. Overall, special education students felt very positively about working in cooperative groups and how they were treated by regular class students.

Questionnaire on Use of Cooperative Groups and Teacher Feedback

In June of the project year, teachers were invited to a luncheon to discuss future directions and provide feedback on the project. Teachers filled out a form on their use of cooperative learning groups which indicated that they were all conducting cooperative learning activities. Six of the nine teachers responded to the survey, indicating they were using cooperative learning activities in their classes from 10% to 25% of the time and three of the teachers used cooperative activities from 25% to 50% of the time. At the beginning of the project none of the teachers surveyed had used cooperative learning groups in their classes.

Teachers also evaluated the project using a questionnaire that solicited both positive and negative feedback. A variety of positive

remarks were made, including feedback on how helpful the support of the university consultants and the facilitating teacher were, how valuable the day-long training session in August and the cooperative learning conference with David Johnson were, how helpful the books on cooperative learning (Circles of Learning, Cooperative Learning Lesson Plans) were, and how excited they were about the students' progress and their positive reactions to learning in cooperative groups ("...the satisfaction of the shy child showing improved self-esteem.")

The feedback concerning the monthly small group meetings was very positive. Teachers appreciated the opportunity to discuss strategies and problems with their colleagues involved in the training. One teacher remarked that "the group meetings have been helpful in that we can share problems and successes, we can get answers to questions and get advice on how to do things differently, and (on) instruction." Another teacher felt that shorter meetings would be an improvement (the meetings were at the end of the school day and lasted about 2 hours). When asked to contribute a more "ideal" way to learn about cooperative learning, one teacher's remark was: "Do not change anything. Being treated like professionals was refreshing."

When asked what would have improved the project, or what could have been done differently, the feedback was most helpful. Several teachers suggested that we spend more time initially with the "how to's" of cooperative learning in order to help them get a better start in developing and implementing cooperative lessons. One teacher's idea was to offer a more formal university course on cooperative learning at the beginning of the project and another wanted more workshops. Several teachers wished they could actually have observed others using cooperative learning (rather than simply observing videotapes) before they started using the procedures themselves. Some teachers felt they could have benefitted from more contact with the facilitating teacher or university consultants for help in using cooperative learning techniques and dealing with special education students.

Project personnel concurred with all the teacher recommendations. In initiating similar projects in other districts, a workshop/course that meets for a one day-long session and three follow-up sessions has been developed. This schedule allows for more content to be covered and permits teachers to try techniques in their classes, share what they are doing, and obtain feedback and support. We agree that support personnel should be more available to assist teachers. Careful study must

be made of the role of the special educator in mainstreaming efforts. Our facilitating teacher was only available part-time, and her role and responsibilities would warrant a full-time position and a role redefinition. Moreover, the peer coaching component of the project was not emphasized and carried through to the degree it should have been, in that teachers weren't meeting as often as we would have hoped.

Also, we have learned that the degree of involvement of school principals in the project should have been increased, as the principal is the person whose "primary responsibility...is to foster a school climate in which teachers have the courage to challenge their current instruction practices and strive to grow and develop professionally" (Johnson & Johnson, 1989, p.1:8). Principals were informed of the staff development activities in general and gave the necessary permissions, but were not involved as inspirational leaders or active participants. An ideal situation would be to obtain a commitment on the part of the entire teaching faculty, administrators, parents, and support staff to the notion of cooperative learning in a cooperative school. Recently David and Roger Johnson, in their book entitled Leading the Cooperative School (1989), identified characteristics of a cooperative school, making the case that promoting an effective school which is also a cooperative school

involves much more than training a subset of the teachers in the school. However, the resulting core of teachers trained in our techniques promises to set the stage and provide the impetus for a future cooperative school.

Linking Rural Schools

A commitment to expanding the cooperative learning training and support services throughout the state of Maine led to the development of the Northern New England Network for Cooperative Learning and the Center for Cooperative Learning at the University of Maine at Farmington. Numerous requests for replication of the staff development project in additional districts made it clear that teachers and administrators were anxious for an opportunity to share with and learn from others in the state. The purpose of the Center is to provide support to teachers and other professionals interested in cooperative learning and effective instruction procedures and to conduct field based research on cooperative learning. Network activities include field based research on cooperative learning. Network activities include dissemination of information (papers, books, bibliographies, contacts, advice, etc.), the publication of a newsletter, and organization of an annual conference on cooperative learning. As a result of the increased demand for training (we have offered over 20 workshops this year), another conference has

been scheduled to offer training by nationally renowned experts to professionals throughout northern New England. At the conference, time will be devoted to further develop the concept of a regional network. One idea is to group teachers from job-alike areas who live within 30-60 miles of one another for support activities. A facilitator will help the conference participants form support groups to organize future meetings and activities.

Conclusion

Effective social integration of students with disabilities entails classroom situations in which regular students and students with special needs have opportunities for meaningful interaction. Cooperative learning situations provide an excellent context for such interactions to occur. When properly implemented, cooperative learning techniques produce improved academic achievement and improved interpersonal relationships among peers.

To impart skills in cooperative learning, a cooperative approach to staff development (including teacher support teams, teacher decision-making, and peer coaching) was used. Preliminary evaluation results indicated that by the end of the year students in cooperative classes (a) experienced greater decreases in "alienation," or feelings of

estrangement from school, peers, and classroom activities, than students in control classes and (b) experienced grater degrees of positive interdependence with their classmates than students in control or contrast classes. Special education students in cooperative classes were rated more favorably over the year by their regular class peers (according to how much they would like to "work with" them) than special education students in contrast classes. Nonhandicapped students in cooperative classes also rated one another more positively than students in contrast classes. Structured interviews with special education students indicated predominantly positive feelings about working in cooperative groups.

Teachers involved in the project were using cooperative learning procedures from 25% to 50% of the time in their classes by the end of the year. They evaluated the project favorably, particularly with respect to the training model, the emphasis on teacher decision making regarding staff development activities, and the support group meetings. Suggestions for improving the project focused on more intensive training earlier in the project and increased support from university consultants and the teacher facilitator.

As a result of the success of the project and numerous requests for training and support in cooperative learning in Maine, a Northern New

England Network for Cooperative Learning and a Center for Cooperative Learning at the University of Maine at Farmington were established to provide assistance in cooperative learning with the goal of linking rural education personnel and rural schools. Our belief is that it is just as important to build collaborative and supportive relationships among educational professionals (including university faculty, classroom teachers, educational assistants, administrators and parents) as it is to build collaborative and supportive relationships among students.

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Table 1

Cluster Definitions and Variation

Cluster	Description	No. of Items	Variation: Proportion Explained
Cooperative Learning	Liking of working cooperatively.	9	.46
Alienation	Belief that one is estranged from school, peers and classroom activities.	5	.46
Student Personal and Academic Support	Belief that student like one as a person and wish to help on learn.	10	.43
Teacher Personal and Academic Support	Belief that the teacher likes one as a person and wishes to help one learn.	8	.56
Positive Interdependence	Perceptions of joint outcomes, sharing resources, and that all students learn the material.	9	.41
Achieving for Social Approval	Belief that one achieves to please teachers, parents, and peers.	5	.50
Fairness of Grading	Belief that students get the grades they deserve and if one works hard, one succeeds.	4	.55

Table 2

Cluster Means from Regular Class Student Responses to the Classroom Life Instrument

Social Climate Cluster	Condition	October	May
Cooperative Learning	Cooperative	102	103.16
	Control	110.16	124.04
	Contrast	133.59	130.10
Alienation	Cooperative	95.25	111.56
	Control	119.21	120.94
	Contrast	132.39	135.94
Student Personnel and Academic Support	Cooperative	104.54	98.54
	Control	114.41	121.23
	Contrast	135.30	121.22
Teacher Personnel and Academic Support	Cooperative	93.64	119.02
	Control	109.29	127.41
	Contrast	134.22	129.28
Positive Interdependence	Cooperative	106.93	93.24
	Control	108.94	122.28
	Contrast	130.01	127.81
Achieving for Social Support	Cooperative	105.58	105.39
	Control	110.02	125.66
	Contrast	136.61	130.85
Fairness of Grading	Cooperative	103	106.46
	Control	118.11	118.97
	Contrast	130.15	130.92

Note: A higher mean score indicates disagreement with the survey item.

Table 3

Frequencies of Peer Ratings on Regular Class Students that Changed from October to November

	Condition		
	Cooperative	Control	Contrast
Positive	32	23	25
Nonsignificant or negative	90	106	141
N =	122	129	166

Table 4

Frequencies of Peer Ratings of Special Education Students that Changed Significantly and Positively from October to November

	Condition		
	Cooperative	Control	Contrast
Positive	6	0	0
Nonsignificant or Negative	10	7	18